

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1. (Currently Amended) A method of producing molecularly imprinted microspheres comprising specific binding sites, ~~characterised by~~ comprising polymerising functional monomers and crosslinkers in a reaction solvent in the presence of print molecules as templates in a surfactant-free precipitation polymerisation process, which print molecules are capable of forming non-covalent or reversible covalent interactions with said functional monomers.

Claim 2. (Original) A method according to claim 1, wherein the total volume of polymerisable monomers and crosslinkers is kept in the range of about 0.01 to 20% of the volume of the reaction solvent.

Claim 3. (Currently Amended) A method according to claim 1 ~~or 2~~, wherein the reaction solvent is aqueous or non-aqueous.

Claim 4. (Currently Amended) A method according to claim 1 ~~or 1~~, wherein said reaction solvent is composed of a single solvent component or of multiple solvent components.

Claim 5. (Original) A method according to claim 1, wherein said functional monomers have the same functionality.

Claim 6. (Original) A method according to claim 1, wherein said functional monomers have different functionality.

Claim 7. (Currently Amended) A method according to claim 1 ~~or 2~~, wherein the solubility of the print molecules in the reaction solvent is adjusted by changing the composition of the reaction solvent.

Claim 8. (Original) A method according to claim 1, wherein the polymerisation is induced by heat, UV radiation, γ radiation and/or chemically.

Claim 9. (Original) A method according to claim 1, wherein said polymerisation process is a free-radical polymerisation process, an ionic polymerisation process, a coordination polymerisation process of a step growth polymerisation process.

Claim 10. (Currently Amended) A method according to claim 1 ~~or 2~~, wherein a desired size of the microspheres is achieved by controlling the nucleation and particle growth process.

Claim 11. (Original) A method according to claim 10, wherein the control of the nucleation and particle growth process is achieved by adjusting the composition of the functional monomer/crosslinker/solvent system and/or the reaction conditions during the polymerisation in order to change the solubility of the growing polymer chains.

Claim 12. (Currently Amended) A method according to claim 10, wherein the control of the nucleation and particle growth process is ~~such as~~ intended to avoid aggregation of the microspheres.

Claim 13. (Currently Amended) A method according to claim 1 ~~or 2~~, wherein the size of the microspheres as produced is in the range of 0.01-10 μ m.

Claim 14. (Currently Amended) A method according to claim 1 ~~or 2~~, wherein the reaction conditions are controlled so that the microspheres become monodisperse.

Claim 15. (Currently Amended) ~~Use of the molecularly imprinted microspheres as prepared according to any one of claims 1-14;~~ A method for screening of chemical

libraries, for catalysis, for facilitating synthesis, for analyte determination using ligand binding assays and/or agglutination assays, for therapeutic purposes, or for controlled release comprising using the molecularly imprinted microspheres according to claim 1.

Claim 16. (Currently Amended) ~~Use of the molecularly imprinted microspheres as prepared according to any one of claims 1-14, as stationary phase or modifier in A method for conducting~~ capillary electrophoresis, capillary electrochromatography or HPLC analysis comprising using the molecularly imprinted microspheres according to claim 1 as the stationary phase or as a modifier.

Claim 17. (Currently Amended) ~~Use of the molecularly imprinted microspheres as prepared according to any one of claims 1-14, as recognition component in A biomimetic [sensors] sensor~~ comprising the molecularly imprinted microspheres according to claim 1 as a recognition component.

Claim 18. (Currently Amended) ~~Use of the molecularly imprinted microspheres as prepared according to any one of claims 1-14, as An~~ affinity-labelled probe for targeting cells or other biological material comprising the molecularly imprinted microspheres according to claim 1.

Claim 19. (Currently Amended) ~~Use of the molecularly imprinted microspheres as prepared according to any one of claims 1-14, as binding entities for the preparation of~~
A composite materials material comprising the molecularly imprinted microspheres according to claim 1 as a binding entity.

Claim 20. (New) A method according to claim 1, wherein the reaction solvent is aqueous or non-aqueous.